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09/771,240	01/26/2001	Amit Kumar Sarkhel	EN995038US5	6976

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EXAMINER
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IP, SIKYIN

ART UNIT	PAPER NUMBER
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1742

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UNITED STATES DEPARTMENT OF COMMERCE  
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Paper No. 020904

Serial Number: 09/771,240  
Filing Date: January 26, 2001  
Appellant(s): Sarkhel et al

Eugene Lieberstein  
For Appellant

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EXAMINER'S ANSWER

This is in response to the brief on appeal filed November 05, 2003.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

**(3) Status of Claims**

The statement of the status of the claims contained in the brief is correct.

This appeal involves claims 9, 10, 13, and 14.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

The amendment after final rejection filed on March 19, 2003 has been entered.

**(5) Summary of Invention**

The summary of invention contained in the brief is correct.

**(6) Issues**

The appellant's statement of the issues in the brief is correct.

**(7) Grouping of Claims**

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because the invention of all claims is the solder composition. As states in 37 CFR § 1.192 (c ) (7), "Merely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable."

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to

the brief is correct.

**(9) Prior Art of Record**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

Number	Name	Date
5,730,932	SARKHEL	3-1998
5,439,639	VIANCO	8-1995
Re.33,197	DEAMBROSIO	4-1990
Re.32,982	O'ROURKE	7-1989
5,361,969	GILETA	11-1994

KATTNER et al, "On the Sn-Bi-Ag Ternary Phase Diagram," Journal of Electronic Material, vol. 23, No. 7, 1994, pages 603-610.

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Double Patenting**

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 8-10, 13, and 14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 12-17 of U.S. Patent No. 5730932 to Sarkhel et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed steps and solder composition overlap the steps and solder composition of cited patent.

#### ***Claim Rejections - 35 USC § 103***

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant

is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9 and 13-14 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 5439639 to Vianco in view of USP Re. 33197 to Deambrosio, USP Re. 32982 to O'Rourke, or USP 5361969 to Gileta.

The Vianco reference(s) disclose(s) the features including the claimed Sn-Ag-Bi solder composition (col. 5, lines 23-45) and wave soldering method (col. 1, lines 15-47). The difference between the reference(s) and the claims are as follows: Vianco does not disclose the wave soldering setup. However, Deambrosio (abstract), O'Rourke (col. 1, lines 23-65), or Gileta (col. 1, lines 51-68) disclose(s) wave soldering setup in the same field of endeavor or the analogous metallurgical art. Therefore, as is evident by cited references that the claimed solder composition and wave soldering methods are known in the art of cited references.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over references as applied to claims above, and further in view of Kattner et al.

The claimed subject matter as is disclosed and rejected

above by the cited reference(s) except for higher Bi content. Vianco in col. 2, lines 38-51 discloses higher Bi content is known in the plumbing art for a large pasty range. Kattner in page 603, left col. discloses Sn-Bi-Ag solder system is known in the art for electronic applications. In page 608, Figure 7 Kattner discloses liquidus surface and solidus surface of Sn-Bi-Ag system in the same field of endeavor or the analogous metallurgical art. Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to adjust the result effective variable such as Bi content for a desirable melting temperature range. It has been well settled that selecting a range in a known range by optimization for the best results is within ambit of ordinary skill artisan, see *In re Aller*, et al., 105 USPQ 233 and *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

**(11) Response to Argument**

Appellant's arguments filed November 05, 2003 have been fully considered but they are not persuasive.

Appellants' argument as set forth in pages 5-7 of the instant brief is noted. But, it is apparent that appellants' argument is based on a wrong Ag content (5.28 wt.%, see instant

brief, item 8, line 4). The solder alloy (90.48Sn-3.28Ag-6.23Bi) at col. 5, line 39 of Vianco is anticipated the claimed solder composition (see appealed claim 9). It is well settled that the teaching of a reference is not limited to preferred embodiments. All disclosures of prior art, including unpreferred embodiments, must be considered in determining obviousness. See *In re Boe*, 148 USPQ 507, 510 (CCPA 1966) and *In re Siebentbritt*, 152 USPQ 618. Moreover, under 35 USC § 103, a reference must be considered not only for what it expressly teaches, but also for what it fairly suggests. *In re Fracalossi*, 681 F.2d 792, 794 n.1, 215 USPQ 569, 570 n.1 (CCPA 1982); *In re Lamberti*, 545 F.2d 747, 192 USPQ 278 (CCPA 1976); and *In re Heck*, 699 F.2d 1331, 1333, 216 USPQ 1038, 1039 (Fed. Cir. 1983).

Appellants' argument as set forth in paragraph bridging pages 6-7 of the instant brief is noted. But, col. 4, lines 41-50 of Vianco are directed to a Bi-Sn binary alloy. Appellants' attention is directed to col. 4, lines 51-57 that up to 7 wt.% Bi is allowed with Sn-Bi-Ag system to form an eutectic composition.

Appellants' argument presented first time in page 8, first paragraph of the instant brief is noted. But, appellants' attention is directed to Deambrosio (abstract), O'Rourke (col. 1, lines 23-65), or Gileta (col. 1, lines 51-68) that wave soldering setup for circuit boards is well known in the art of cited



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references. With respect to the argued microstructure that none of the appealed claims recites microstructure.

Appellants' argument presented first time in page 8, from second full paragraph is noted. But, Vianco in Figure 1 and 2 and col. 4, lines 51-56 discloses Bi content up to 7 wt.%.

Appellants' statement in page 10, first full paragraph is noted. Appellants' attention is directed to the rejection above that picking a range from a known phase diagram without unexpected result is obvious.

For the above reasons, it is believed that the rejections should be sustained.



**SIKYIN IP**  
**PRIMARY EXAMINER**

S. Ip  
February 9, 2004

Conferees  
Robert J. Warden, SPE

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Respectfully submitted,

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